CLAIMS

[43] There is claimed:

1. A process for the continuous production of coke, which comprises:

   (a) ~~providing a means for~~ heating petroleum residuum to a temperature within the range from about 850 – 1000 degree F., (b) transferring the resulting heated petroleum residuum to a vessel, (c) releasing of vapors within said vessel, (d) wherein the residence time of the remaining petroleum residuum is less than 5 minutes within said vessel, transferring the remaining petroleum residuum from near the bottom of said vessel to a horizontal reactor vessel, (e) operating said horizontal reactor vessel under pressure ranging from about 4 psia to 65 psia, (f) mixing and kneading within said horizontal reactor vessel to promote devolatilization, carbonization and formation of coke, (g) ~~providing a means for~~ cooling the resulting coke product to a range from about 100 – 250 degrees F and (h) transporting the resulting coke.

2. The process of claim 1 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with a single agitation shaft and with an inlet for the remaining petroleum residuum and an outlet for the resulting coke product, and multi-vapor outlets.

3. The process of claim 1 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with multiple agitation shafts~~, including a main agitator shaft and a cleaning agitator shaft,~~ equipped with radial extensions, discs and bars so that the shafts continuously scrape the resulting coke from the reactor surfaces~~as well as from each of the agitation shafts~~"

4. The process of claim 1 wherein an amount of air ~~or oxygen may be~~ is added to said horizontal reactor vessel thereby increasing the temperature and hence the rate of cracking reactions and carbonization reactions.

5. The process of claim 1 wherein the means for cooling the resulting coke is provided with ~~either~~ air ~~or closed circuit cooling water~~.

6. The process of claim 1 wherein the means for cooling the resulting coke is provided by applying water directly to the resulting coke and forming a coke slurry.

7. The process of claim 1 wherein an amount of oxygen is added to said reactor vessel thereby increasing the temperature and hence the rate of cracking reactions and carbonization reactions.

8. The process of claim 1 wherein the means for cooling the resulting coke is provided with closed circuit cooling water.

9. A process for the continuous production of coke, which consists essentially of:

(a) heating petroleum residuum to a temperature within the range from about 850 – 1000 degree F., (b) transferring the resulting heated petroleum residuum to a vessel, (c) releasing of vapors within said vessel, (d) wherein the residence time of the remaining petroleum residuum is less than 5 minutes within said vessel, continuously feeding the remaining petroleum residuum from near the bottom of said vessel to a reactor vessel, (e) operating said reactor vessel under pressure ranging from about 4 psia to 65 psia, (f) mixing and kneading within said horizontal reactor vessel to promote devolatilization, carbonization and formation of coke, (g) cooling the resulting coke product to a range from about 100 – 250 degrees F and (h) transporting the resulting coke.

10. The process of claim 9 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with a single agitation shaft and with an inlet for the remaining petroleum residuum and an outlet for the resulting coke product, and multi-vapor outlets.

11. The process of claim 9 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with multiple agitation shafts equipped with radial extensions, discs and bars so that the shafts continuously scrape the resulting coke from the reactor surfaces.

12. The process of claim 9 wherein an amount of air is added to said horizontal reactor vessel thereby increasing the temperature and hence the rate of cracking reactions and carbonization reactions.

13. The process of claim 9 wherein the means for cooling the resulting coke is provided with air.

14. The process of claim 9 wherein the means for cooling the resulting coke is provided by applying water directly to the resulting coke and forming a coke slurry.

15. The process of claim 9 wherein an amount of oxygen is added to said reactor vessel thereby increasing the temperature and hence the rate of cracking reactions and carbonization reactions.

16. The process of claim 9 wherein the means for cooling the resulting coke is provided with closed circuit cooling water.

17. A process for the continuous production of coke, which comprises:
~~(a)~~a closed system, (b) heating petroleum residuum to a temperature within the range from about 850 – 1000 degree F., (c) transferring the resulting heated petroleum residuum to a horizontal reactor vessel, (d) continuously releasing of vapors within said horizontal reactor vessel, (e) transferring the remaining petroleum residuum through the horizontal vessel (f) operating said horizontal reactor vessel under pressure ranging from about 4 psia to 65 psia, (g) mixing and kneading within said horizontal reactor vessel to promote devolatilization, carbonization and formation of coke, (h) cooling the resulting coke product to a range from about 100 – 250 degrees F and (i) transporting the resulting coke.

18. The process of claim 17 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with a single agitation shaft with a radial extension and with an inlet for the remaining petroleum residuum and an outlet for the resulting coke product, and multi-vapor outlets.

19. The process of claim 17 wherein the mixing and kneading step occurs by using a horizontal reactor vessel with multiple agitation shafts equipped with radial extensions, discs and bars so that the shafts continuously scrape the resulting coke from the reactor surfaces.

20. The process of claim 17 wherein an amount of air is added to said horizontal reactor vessel thereby increasing the temperature and hence the rate of cracking reactions and carbonization reactions.